What is claimed is:

1.   A method for assisting capacity planning in a network having a plurality of links, said method comprising the steps of:

determining spare capacity on at least one link of the network, where said spare capacity is representative of an existing capacity plus an augmented capacity minus a bandwidth of all circuits routed on said at least one link of the network; and

computing an overall cost in accordance with said spare capacity for provisioning a circuit on said at least one link of the network.

2.   The method of claim 1, further comprising:

applying a benefit weight to said spare capacity.

3.   The method of claim 2, wherein said computing step comprises:

minimizing an objective function of $\Sigma\ c_j\ x_j - \Sigma\ s_j\ b_j$ to obtain said overall cost, where s_j represents said spare capacity for a link j, where b_j represents said benefit weight for said link j, where x_j represents said augmented capacity for said link j, and where c_j represents a cost for said link j.

4.   The method of claim 3, further comprising:

applying run integer programming to said objective function.

5.   The method of claim 3, further comprising:

applying simulated annealing to said objective function.

6.   The method of claim 2, wherein said benefit weight accounts for a cost for financing said augmented capacity.

7.   The method of claim 6, wherein said benefit weight, b_j, is expressed as:

$$b_j = c_j - \alpha\,p\,n\,c_j = c_j\,(1 - \alpha\,p\,n)$$

where c_j represents a cost for a link j, where α represents an interest rate for capital per unit time, where n represents a number of capacity planning periods, and where p represents a length of said capacity planning period.

8.   The method of claim 2, wherein said benefit weight accounts for a discount period.

9.   The method of claim 8, wherein said benefit weight, b_j, is expressed as:

$$b_j = c_j - \alpha\, q_j\, c_j = c_j\, (1 - \alpha\, q_j)$$

where c_j represents a cost for a link j, where α represents an interest rate for capital per unit time, and where q_i represents said discount period.

10.   The method of claim 1, further comprising:
       maintaining a minimum amount of said spare capacity for each of said links.

11.   An apparatus for assisting capacity planning in a network having a plurality of links, comprising:
       means for determining spare capacity on at least one link of the network, where said spare capacity is representative of an existing capacity plus an augmented capacity minus a bandwidth of all circuits routed on said at least one link of the network; and
       means for computing an overall cost in accordance with said spare capacity for provisioning a circuit on said at least one link of the network.

12.   The apparatus of claim 11, further comprising:
       means for applying a benefit weight to said spare capacity.

13.   The apparatus of claim 12, wherein said computing means minimizes an objective function of $\Sigma\, c_j\, x_j - \Sigma\, s_j\, b_j$ to obtain said overall cost, where s_j represents said spare capacity for a link j, where b_j represents said benefit

weight for said link j, where x_j represents said augmented capacity for said link j, and where c_j represents a cost for said link j.

14.   The apparatus of claim 12, wherein said benefit weight accounts for a cost for financing said augmented capacity or a discount period.

15.   The apparatus of claim 11, further comprising:

means for maintaining a minimum amount of said spare capacity for each of said links.

16.   A computer-readable medium having stored thereon a plurality of instructions, the plurality of instructions including instructions which, when executed by a processor, cause the processor to perform the steps comprising of:

determining spare capacity on at least one link of the network, where said spare capacity is representative of an existing capacity plus an augmented capacity minus a bandwidth of all circuits routed on said at least one link of the network; and

computing an overall cost in accordance with said spare capacity for provisioning a circuit on said at least one link of the network.

17.   The computer-readable medium of claim 16, further comprising:

applying a benefit weight to said spare capacity.

18.   The computer-readable medium of claim 17, wherein said computing step comprises:

minimizing an objective function of $\Sigma\ c_j\ x_j - \Sigma\ s_j\ b_j$ to obtain said overall cost, where s_j represents said spare capacity for a link j, where b_j represents said benefit weight for said link j, where x_j represents said augmented capacity for said link j, and where c_j represents a cost for said link j.

19.   The computer-readable medium of claim 17, wherein said benefit weight accounts for a cost for financing said augmented capacity or a discount period.

20.   The computer-readable medium of claim 16, further comprising:

maintaining a minimum amount of said spare capacity for each of said

links.